

WHAT IS CLAIMED IS:

1. A method for fabricating N-type doped polycrystalline silicon, comprising:

providing a wafer;

placing the wafer in a reaction chamber;

5 introducing a reaction gas source, an N-type doped gas source and a gas source of a catalyst into the reaction chamber; and

performing a chemical vapor deposition process to form an N-type doped polycrystalline silicon film.

10 2. The method of claim 1, wherein the reaction gas source is selected from a group consisting of SiH_2Cl_2 , SiHCl_3 and SiCl_4 .

3. The method of claim 2, wherein the catalyst includes B_2H_6 .

15 4. The method of claim 1, wherein the reaction gas includes SiCl_4 .

5. The method of claim 2, wherein the catalyst includes B_2H_6 .

6. The method of claim 1, wherein the catalyst includes B_2H_6 .

20 7. The method of claim 1, wherein the doped gas source includes PH_3 .

8. A method for fabricating N-type doped polycrystalline silicon, comprising:

providing a wafer;

placing the wafer in a reaction chamber;

introducing silane containing chlorine, PH_3 and B_2H_6 as gas source into the reaction chamber for increasing deposition rate, wherein an amount of B_2H_6 is lower than that of the PH_3 ; and

5 performing a chemical vapor deposition process to form a N-type doped polycrystalline silicon film.

9. The method of Claim 8, wherein the silane containing chlorine is selected from a group consisting of SiH_2Cl_2 , SiHCl_3 and SiCl_4 .

10. A method for fabricating N-type doped polycrystalline silicon, comprising:

providing a wafer;

placing the wafer in a reaction chamber;

introducing silane containing chlorine and a catalyst as a gas source into the reaction chamber to increase rate of deposition;

performing a chemical vapor deposition process to form a polycrystalline film; and

performing an N-type dopant implantation process to form an N-type doped polycrystalline silicon film.

11. The method of claim 10, wherein the silane containing chlorine is selected from a group consisting of SiH_2Cl_2 , SiHCl_3 and SiCl_4 .

12. The method of claim 10, wherein the catalyst includes B_2H_6 .

13. The method of claim 10, wherein the N-type dopant implantation process includes ion implantation.

14. The method of claim 10, wherein the dopant of the N-type dopant implantation
5 process includes phosphorous ions